




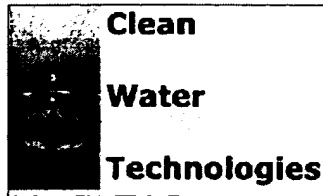


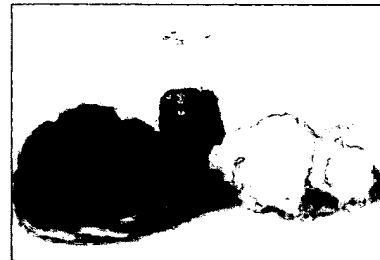
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Smart Sponge®



- Chemically selective to hydrocarbons
- Removes sheen
- Repels water
- Transforms pollutant into stable solid
- 1 pound absorbs 1 gallon of
- Fully recyclable
- Non-leaching
- Static resistant

Smart Sponge® is a combination of petroleum derived co-polymers that readily removes and encapsulates dilute quantities of various pollutants from aqueous streams while repelling water. All AbTech products use this technology.

The resulting solidified oil and polymer mixture remains buoyant and, due to its molecular structure, prevents separation, thus permitting Smart Sponge® to remain in place until fully saturated.

What is Smart Sponge® technology?

Smart Sponge® is AbTech Industries' multi patented hydrocarbon recovery system based on innovative technologies. This technology consists of a proprietary blend of polymers called the Smart Sponge®.

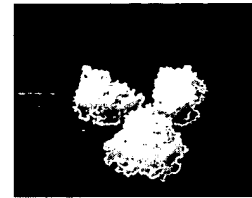
chemically selective to hydrocarbons and readily encapsulates oil and bonds it within the structure. It transforms liquid petroleum hydrocarbons into a manageable solid waste that is fully recyclable. The water and remains completely buoyant for easy retrieval even when fully saturated.

How is Smart Sponge® formulated and pack

The Smart Sponge® is produced by a proprietary manufacturing process into several different forms performance.

What is Smart Sponge® Popcorn for Filtratio

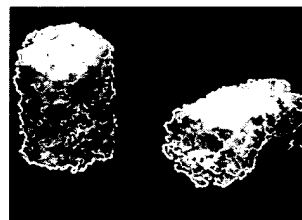
Smart Sponge® Popcorn is a non-leaching filtration media that resembles a piece of popcorn. Smart designed for the filtration of aqueous solutions contaminated by hydrocarbon pollutant levels of 1000 Smart Sponge® Popcorn will function under a wide range of flow rates and pressures. Laboratory and field t be a superior media for stormwater filtration, with an average hydrocarbon removal of better than 80



Smart Sponge® Popcorn

What are Smart Sponge® Propellets for Surf Skimming?

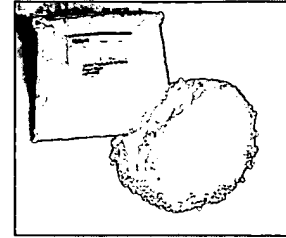
Smart Sponge® Propellets are non-leaching absorbent units, cylindrical in shape and approximately 2 inches in diameter. The Propellets have a rough exterior and a very high internal surface area. Smart Sponge® Propellet mesh containers and are designed to remove floating hydrocarbons, including sheen, from aqueous solutions. Smart Sponge® Propellets float on the surface where the pollutant is most concentrated. The Smart process works equally well in calm or agitated environments.



Smart Sponge® Propellets

What is Smart Sponge® Particulate for land-spills?

Smart Sponge® Particulate is a non-leaching absorbent that is a lightweight powder-like material used to stabilize a wide variety of hydrocarbon spills on land. Smart Sponge® Particulate is placed upon the spill to stabilize hydrocarbons. After several minutes, the absorbed Smart Sponge® Particulate can be removed for recycling. Smart Sponge® Particulate is not recommended for use on water.



Smart Sponge® Particulate

How has Smart Sponge® been developed and

Since 1993, Smart Sponge® has undergone an extensive research, development, and test program to ensure product formulation and assure the integrity of the product. Extensive laboratory testing has been conducted at the company's facilities in Tucson, Arizona, at contract facilities in Albuquerque, New Mexico, and at independent laboratories and universities. In addition to field tests on oil spills, field testing of Smart Sponge® for stormwater treatment is ongoing in California, Massachusetts, and Texas as well as other locations around the world.

What results have been achieved?

1. In a series of tests on Smart Sponge® using ASTM method F716-82(1993)e1, absorbency ratios ranging from 14.5:1 were achieved (weight of absorbed oil to weight of absorbent), depending on the viscosity of the oil and the duration of exposure.
2. Tests were completed for King County, Washington, to demonstrate Smart Sponge® effectiveness in absorbing oil. Fully absorbed Smart Sponge® were flushed with water for ten minutes, producing less than 2.2 mg/L (average 1.7 mg/L), well below the Washington State allowable value of 10 mg/L.
3. Tests have demonstrated the effectiveness of the Smart Sponge® in absorbing low-level dissolved pollutants. Smart Sponge® recovered up to 97% of an 8 ppm benzene solution in a simple gravity feed lab apparatus.
4. Smart Sponge® saturated with used motor oil and diesel fuel, have successfully passed the EPA Method 904 (Toxicity Characteristic Leaching Procedure) Test for volatile and semi-volatile organics, indicating no leachable analytes were present.
5. Smart Sponge® saturated with used motor oil and diesel fuel, have successfully passed the EPA Method 904 (Paint Filter Analysis), indicating no free liquids were present.
6. Smart Sponge® saturated with used motor oil and diesel fuel, have successfully passed the EPA Method 904 (Flashpoint). Saturated Smart Sponge® samples tested at greater than 100°C.
7. Tests indicate neither high nor low pH affects the integrity of the Smart Sponge®, or its absorbing capabilities.
8. Tests have shown that Smart Sponge® Passive Skimmers are static resistant and do not generate static electricity in a 0°F environmental chamber. The surface charge is 1.82×10^{-9} A SEC/m², which is 50% that of polypropylene sorbents.
9. Tests undertaken on the Smart Sponge® Ultra-Urban Filter have shown the product to significantly reduce hydrocarbon pollution in stormwater. Tests run in storm drain simulators confirm that the Ultra-Urban Filter removed 83% of the hydrocarbons present in a 28 ppm hydrocarbon stormwater solution.

What advantage does Smart Sponge® offer over other adsorbents currently on the market?

Smart Sponge® offers a number of obvious advantages over polypropylene adsorbents - primarily its ability to encapsulate recovered oil, resulting in a substantially more effective response. Because Smart Sponge® absorbs hydrocarbons and will not leak or leach, it can remain in place until fully saturated resulting in fewer cleanups and less expensive disposal options. This cost-effectiveness makes Smart Sponge® one of the most competitive products on the market.

What makes Smart Sponge® a stormwater BMP

(Best Management Practice)

Hydrocarbons from nonpoint sources are deposited on streets, highways, parking lots, and industrial into storm drains when it rains. Annual stormwater runoff from one square mile of roads and parking much as 5,000 gallons of oil and grease. This number does not include deliberate dumping and accidents. Smart Sponge® products strategically deployed in catch basins, oil/water separators, and sumps intercept it in a non leaching fashion, from the stormwater flow and prevent its discharge into receiving waters.

What Advantages does the Ultra-Urban Filter Smart Sponge® offer as a BMP or TMDL mitigation device?

The Ultra-Urban Filter has the potential to address several targeted non-point source pollutants. Its design is effective in filtering out hydrocarbons. Just as critical, its design makes it an effective catch basin for sediment, and debris. Often attached to this solid waste are metals, pathogens, and other contaminants.

Can Smart Sponge® be recycled?

Smart Sponge® can be immediately recycled by Ogden Waste Treatment Services (OWTS) in their facilities, by beneficially reusing the spent Smart Sponge® as an alternative fuel in the production of cement. OWTS will guarantee environmentally safe and efficient destruction of the spent product and provide to the customer which will, in effect, reduce any downstream liabilities associated with land filling and for product use.



HOME



Restoring our Rivers, Lakes and Estuaries - Our Lasting Legacy